CATALOGUE

The Montreal Terra Cotta Lumber Company

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President

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Manager

Montreal Terra Cotta Lumber Co.

Porous Terra Cotta FIREPROOFING

Works : Maisonneuve
Office : 26 Board of Trade

N. T. GAGNON, Agent *MONTREAL*

ASSOCIATION FOR PRESERVATION TECHNOLOGY, INTERNATIONAL

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PREFACE

(From the "*Philadelphia Item*".)

"The many accidents and actual collapses of buildings while under construction have given force to the warning of such conservative bodies as the International Society of Building Inspectors, that has long advocated more stringent regulations of EXPERIMENTAL CONSTRUCTION in our cities.

New York's Building Code, now being rewritten, calls for a much higher class of construction in all grades of buildings than the old one, and it throws such safeguards about the use of reinforced concrete as to make that material much less attractive to the speculative builder.

Seattle has just passed a new BUILDING ORDINANCE, permitting standard steel construction to go up to SIXTEEN STORIES, but limiting reinforced concrete buildings to TEN STORIES, and it, also, makes restrictions as to the use of reinforced concrete.

Minneapolis has gone a step further and has just passed an amendment to its building laws compelling every owner who builds a reinforced concrete building to have a specially LICENSED BUILDING SUPERINTENDENT constantly in charge of that work, one DIRECTLY RESPONSIBLE TO THE CITY for the efficiency of his superintendence.

Little by little the authorities are awakening to the fact that concrete is a most excellent thing when PROPERLY HANDLED, but the MOST DANGEROUS of all building materials if the slightest imperfection is allowed in it.

Fatal collapses of buildings have grown altogether TOO COMMON. A radical reform is IMPERATIVE and is in progress. A year ago one of our important building journals exclaimed:—"THE GREY OF OUR CONCRETE STRUCTURES IS ALREADY TOO MUCH STAINED WITH BLOOD. SHALL WE ALLOW THAT STAIN TO SPREAD AND GROW STILL DARKER? Evidently our city authorities have determined to try and prevent the spread of that stain."

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How to Build Fireproof

Fireproofing consists in protecting the structural members of a building against fire, and to obtain that result it is not only sufficient that the materials employed should be non-combustible but must also be absolutely fire resisting and heavy enough to properly protect the steel work.

Porous Terra Cotta is the only material that ever stood a 24 hours fire and water test.

Therefore its efficiency and superiority over all other fireproofing materials or systems is admitted by the highest authorities.

Fireproof buildings are commonly erected of brick walls and steel frame work. The floor framing of steel beams is filled in with flat or segmental porous hollow tile arches which are practically horizontal walls between each floor which form the floors and ceilings, and are designed to carry the super imposed load, prevent the spread of flames from story to story and protect the steel work from the action of fire.

If beams are carried by brick walls the construction is termed "wall bearing"; if by interior and exterior steel columns, "skeleton construction".

To those who are skeptical that one or two inches of porous terra cotta can protect the steel work, we would refer to the record of the Baltimore fire, where the damage was only about 1 per cent, and with material of the right thickness the damage would be Nil.

Porous Terra Cotta Fireproofing

1st. Porous Terra Cotta is composed of clay which has been burned kiln at a temperature of from 2000 to 2500 degrees Fahrenheit. A produ fire cannot readily be destroyed by fire, while all forms of concrete are riously affected by the application of sufficient heat, because the water w has united chemically with the cement, is driven off and the mixture d tegrated.

2nd. It is not composed of a mechanical and chemical mixture of se constituents of variable degrees of freshness, strength and purity w must be measured and mixed by unskilled workmen with more or less hon and care, and left to harden under all sorts of weather conditions.

3. The Architect can readily judge the quality of Terra Cotta by appearance. It must be set by skilled mechanics and cannot be mixed wheeled into the building from a dark cellar and dumped into place, compe him to trust to Providence that his specifications have been followed and the floors will be all right.

4th. A cubic foot of porous Terra Cotta hollow tile weighs about 45 While a cubic foot of the lightest concrete suitable for arches weighs 90 lbs.

5. When Terra Cotta arches are built the key is wedged in, thus stro bracing that span and when all are in position the building is made perf rigid.

6. Terra Cotta is not only absolutely fireproof, but also more nearly so proof than any solid construction can be.

7. The structural steel work must be preserved from corrosion. T Cotta arches set in pure cement mortar are the best rust preventative kno

All cinder concrete and other composition floors contain ingredients i rious to steel and in some instances the deteriorations therefrom is very rapi

8. Brick and Terra Cotta fire proofing carry the lowest insurance rates.

The porosity of Terra Cotta is produced by mixing sawdust with raw During the burning process the sawdust disappears, leaving small cavities w it had been.

Porous Terra Cotta is a better fire and water resisting materials than d or semi porous tiles.

And is therefore the most desirable for floor arches, partitions furr girder and colum covering, and roof blocks.

For quick work Terra Cotta is specially recommended as the centering be removed in from 24 to 48 hours after material is set in place.

Delays of a few weeks often means loss of the rent of a building fo entire year, or even more.

Floor Archings

In the construction of Terra Cotta fireproof floors several different styles of arches are used —

1st. The "flat" arch in which either "End" or "Side" sytems of construction are used.

The "Side" construction is made of bevel blocks, with the cells running longitudinally, or parallel with the beams.

The "End" construction is made with the cells running across the arch. This form of arch is claimed to be much stronger than the "Side" system.

2nd. The Segment arch as shown in cuts.

Flat Arches

FOR

FLOORS AND ROOFS

Flat arches are made up of various shaped blocks as shown in the drawi and photographs.—The blocks resting against the beams are called skewba ad may be either "flush" (without protection on the under side of the bea "lipped" or "flanged" (having the protection molded on the block), or "sof (where the protection is a loose slab held in place by the bevel on the block The intermediate blocks are called "fillers' lengtheners", or "interior" blo and the center one is the "key". The blocks are set breaking joints.

There is shown on page 9. 10 and 11. typical sections illustrating the meth of assembling the various members of the arch. The depth of the arch must proportionned to the span between the beams and to a great extent by the l to be carried. Safe loads of various span of ordinary material are given table on pages 50 and 51, etc.

End construction, flat arch.

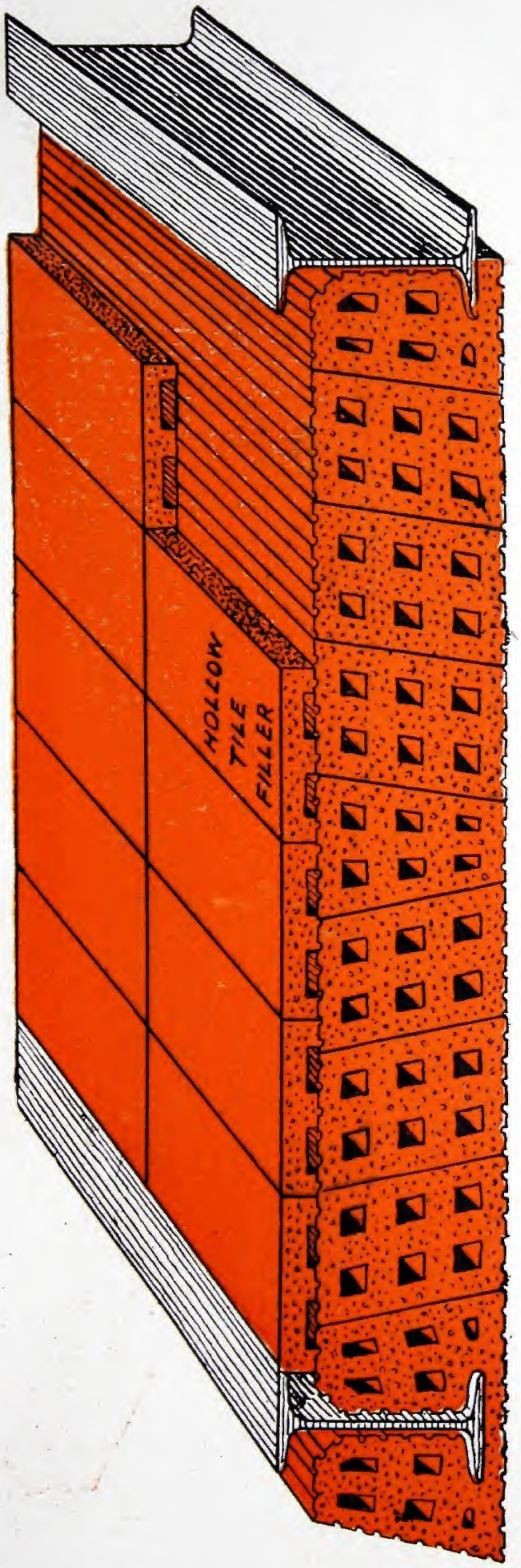
This type of arch differs from the side system in that the blocks are l at right angles instead of parallel with the beams. It is claimed that this fo of construction is stronger than the side constructions otherwise the vantage is on the side of the former which can be laid easier and quicker, a requires less cutting and trimming.

In the end system it is not absolutely necessary that the key should be the center, in fact, it will do as well near the skewbacks if set with break joints.

FLAT ARCH

Between Iron Beams

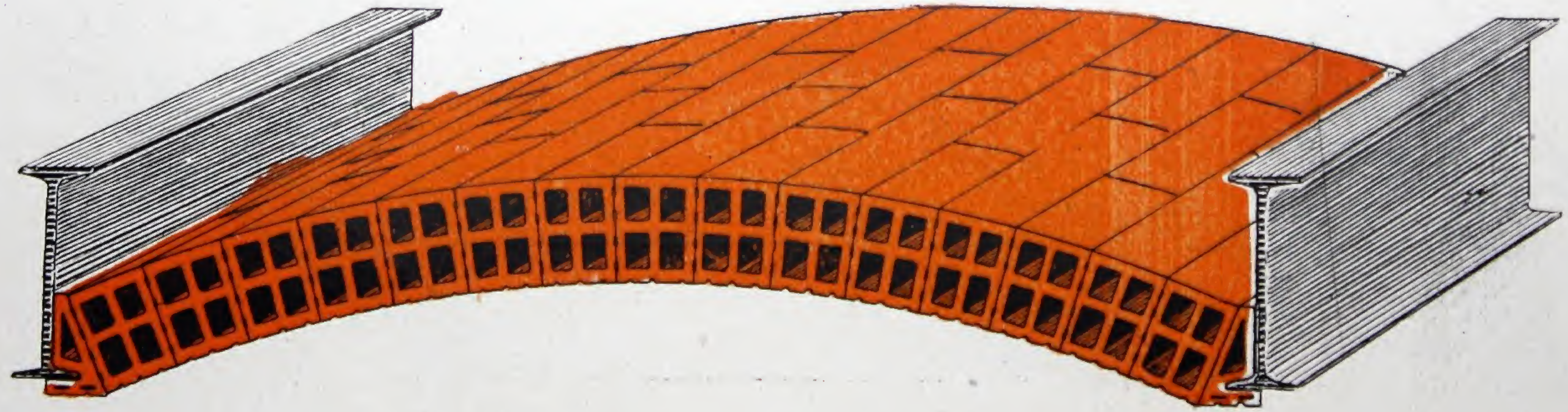
Side Construction



Showing the Protection of Beams on "Skew-Back," or End Brick

SEGMENT ARCHES

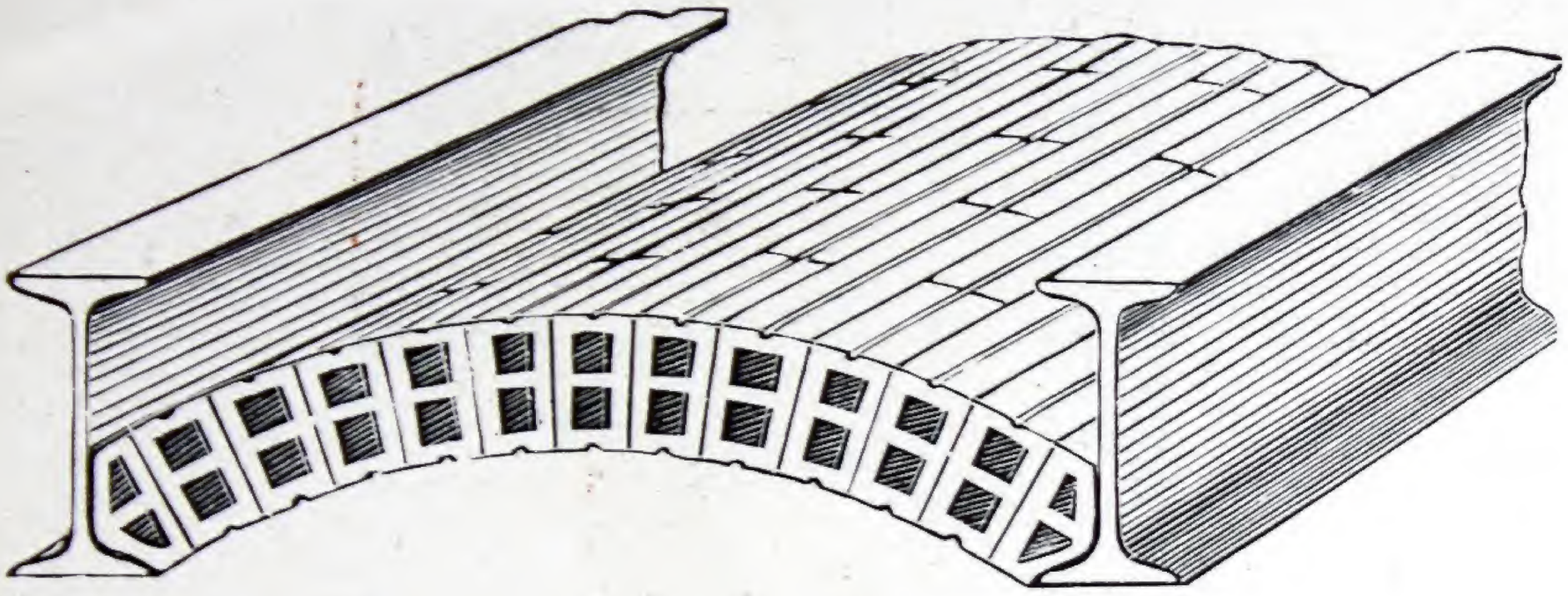
With Beam Protection



Span from 10 to 15 feet between Iron Beams.
Depth of Arch, 6 and 8 inches.

SEGMENT ARCHES

Without Beam Protection



Span from 10 to 15 feet between Iron Beams.
Depth of Arch, 6 and 8 inches.

This form of arch is the strongest and cheapest possible. It is particularly adapted to warehouses, lofts, factories, sidewalks, or wherever great strength is required and a flat ceiling is not necessary. — They are made of rectangular blocks of 4", 6" or 8" hollow tile, or common size hollow bricks — In driveways, where heavily loaded trucks and teams will pass over them, the double rowlock hollow brick arch is preferable, for all other purposes the hollow blocks are better because being much lighter, a lighter I beam can be used with consequent saving.

TIE RODS

The most effective location for the tie rods to counteract the thrust is near the bottom of the beams. They may be placed there and painted or set higher and protected by the arch, if this is done, the rods in the end spans should be made forked or double rods set crossing.

HOLLOW BRICK FOR FLAT ARCHES.

Supported on Raised "Skewbacks."

Depth of "Skew" or End Brick, 10 and 12 inches

" " Flat Arch Brick, 6 and 8 inches

Flat Arch

SUPPORTED ON RAISED SKEWBACKS

Where a paneled ceiling effect can be permitted, the dead weight of cinder fill over the arches can be reduced by using raised skews, thus raising the top of the arch level with top of beams. Where head room is the great consideration and no great heat possible in case of fire, flush skews (without the beam protection) may be used, but not otherwise.

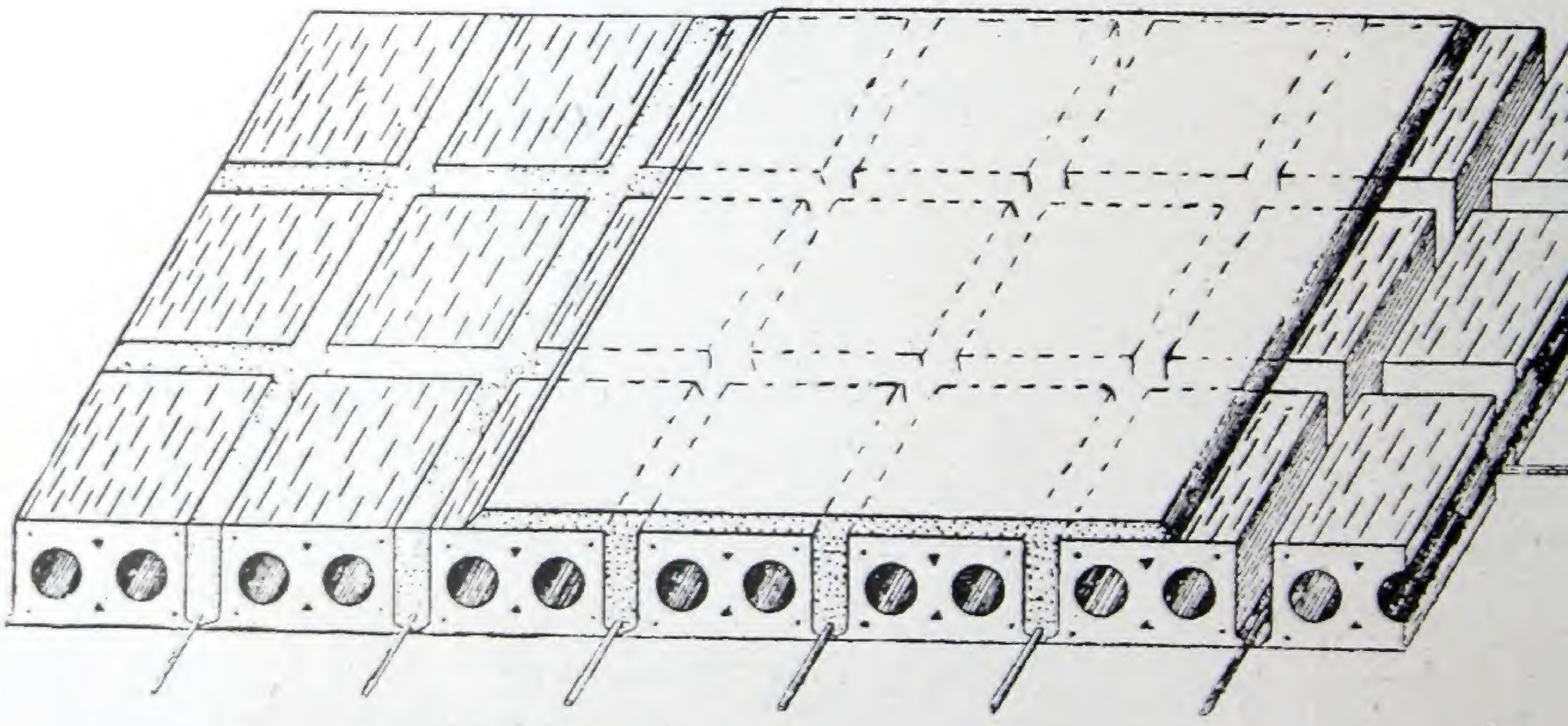
Radial Joints are sometimes specified but should be avoided as they entail needless expense in manufacture and endless confusion and delay in setting without any compensating advantages.

The line of greatest pressure in a flat arch is near the top of the key and bottom of the skewback which must be properly made to receive the pressure at that particular spot.

Where a very light strong arch is required in deep beams, and a flat ceiling is also demanded, this result can be obtained by using a metal lath ceiling suspended below the beams. This form has been used for years in many of our best buildings. The large block with large openings are lighter and cheaper to lay than the smaller ones. By raising the arch at the skewback the arch is flattened and the dead load of concrete at the haunches is reduced, as is also the strength of the arch.

Reinforced Terra Cotta Floors

We can supply material for any form of reinforced Terra Cotta arch o
of the latest patterns or to the architects design.



Girderless Hollow Tile Floors.
Faber System.

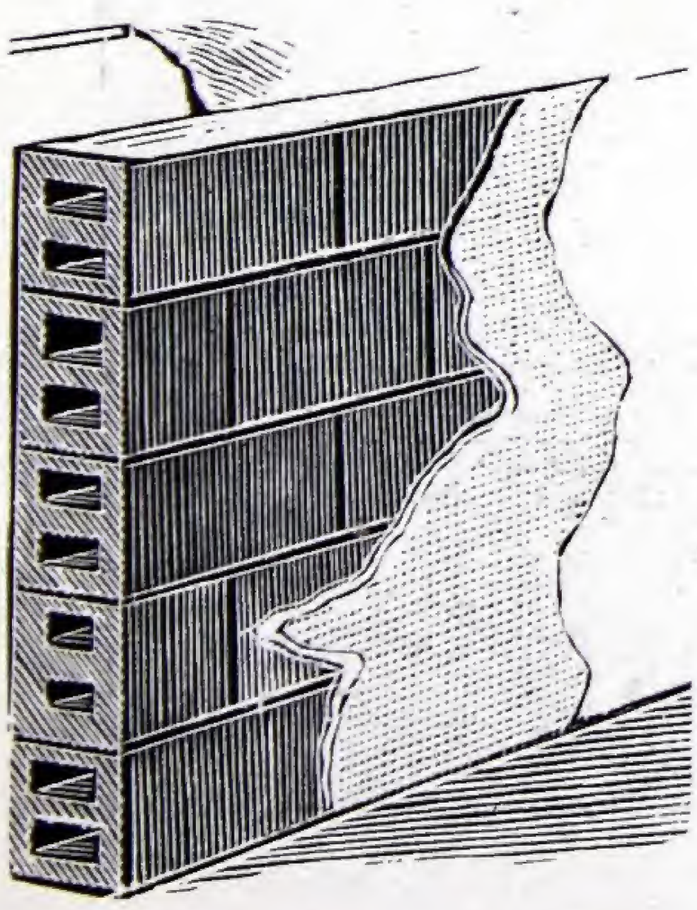
Partitions

The recent fires, such as those of Baltimore, Rochester, etc., have proved beyond a doubt that porous Terra Cotta partitions are the only ones that will withstand a great conflagration. Where they were properly built upon the fire-proof arches or steel beams, laid with cement mortar and wedged against the floor arches at the ceiling above, they stood intact, while all forms of plaster blocks crumbled into rows of rubbish, and metal lath partitions twisted into scrap iron.

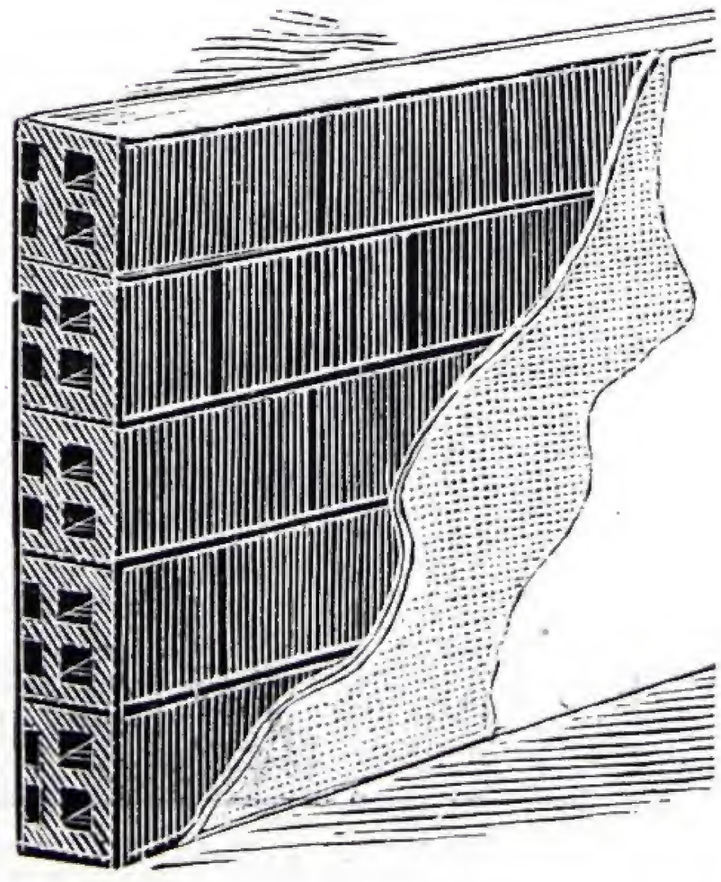
In addition to the fire-resisting qualities of Terra Cotta partitions they are light, strong, easily erected by brick layers, and do not transmit heat, cold, or sound. In places such as school houses where blackboards have to be fastened on the walls the blocks should be full porous. It is not generally practicable to use 2-inch blocks for partitions except for closets, shafts, etc.; unless they are reinforced by metal.

Three inch partition can be safely used up to 12 feet in height, 4-inch to 15 ft. and 6-inch to 20 feet.

In office buildings it is good practice to have all the main corridors and stairways and elevator enclosures of 4-inch, and the partitions between rooms 3-inch. Partitions should be bounded where meeting, and anchored to wood or brick walls by using tenpenny nails, at least in each second joint.

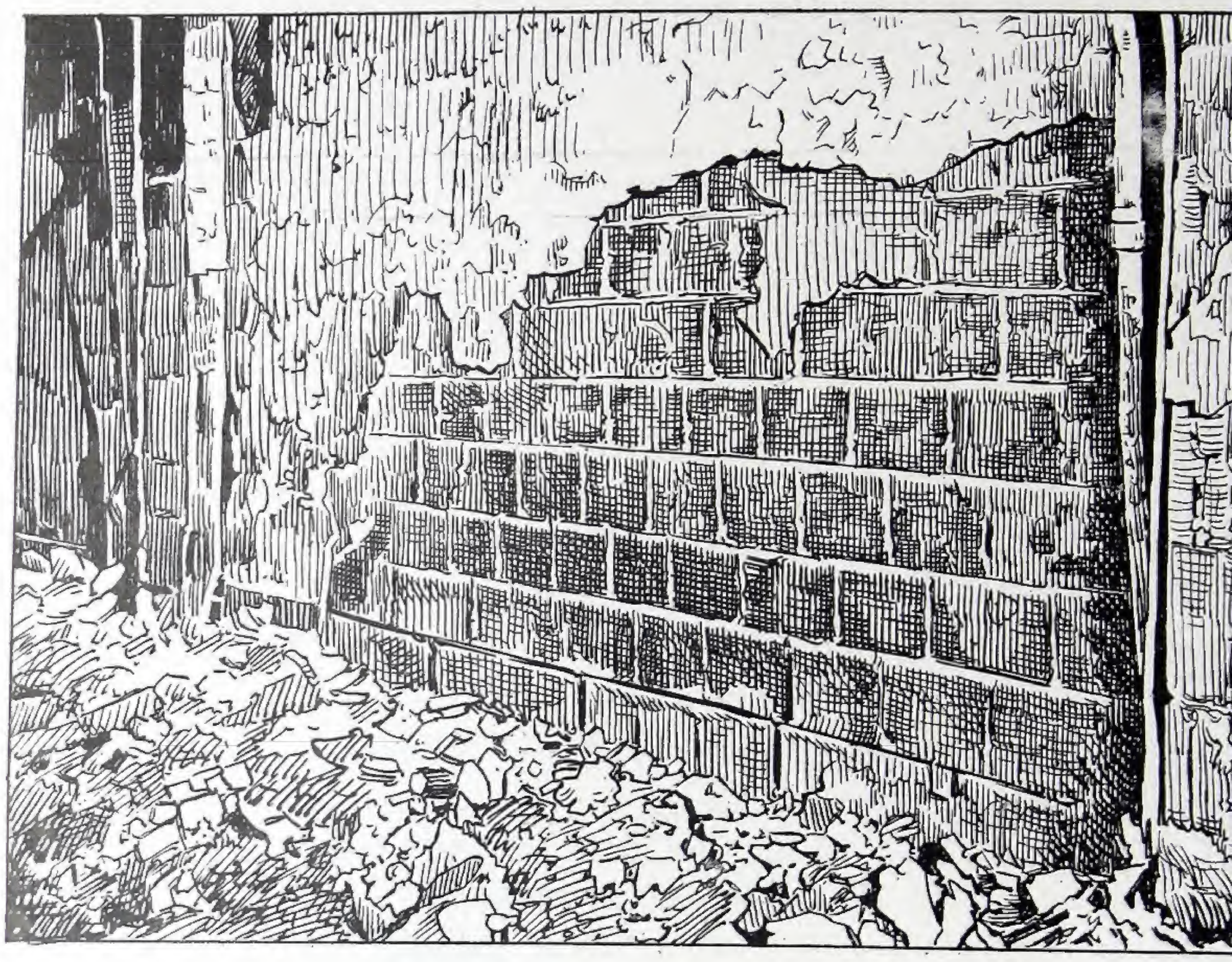


Partitions

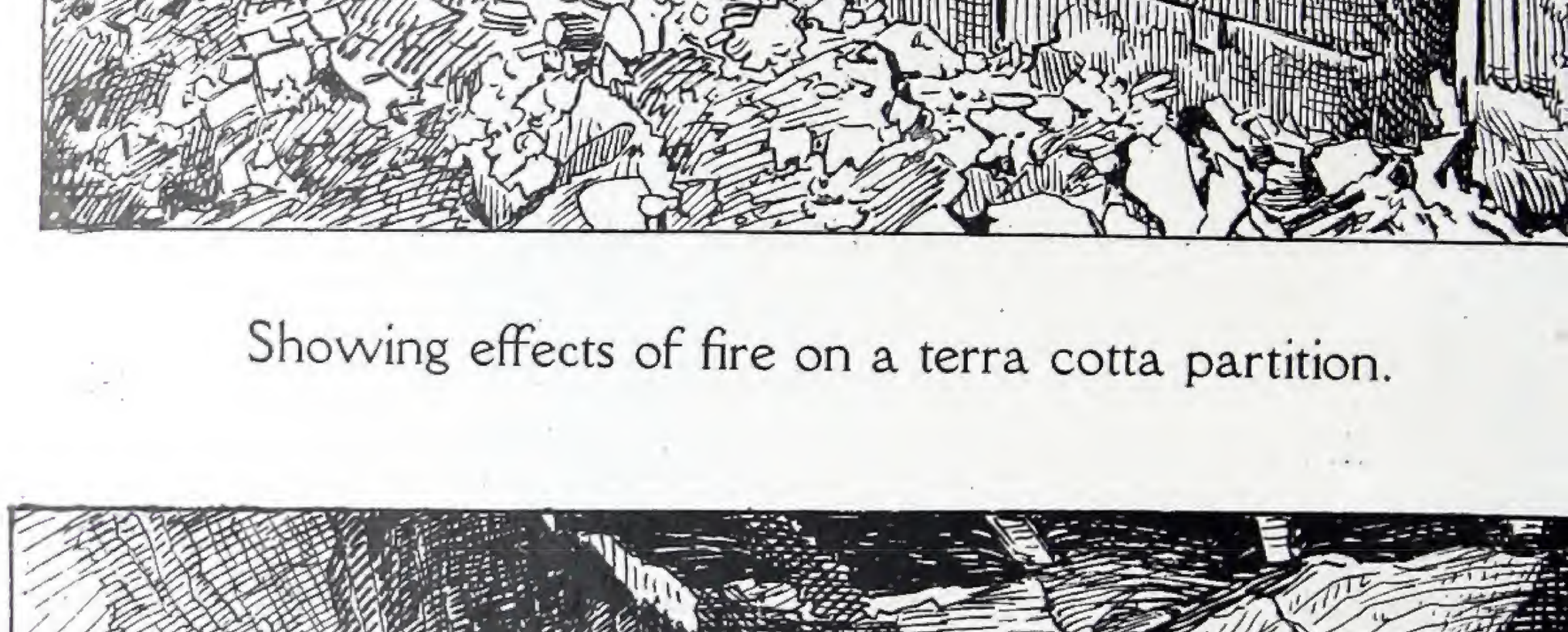


Partitions

COPIES OF PHOTOGRAPHS

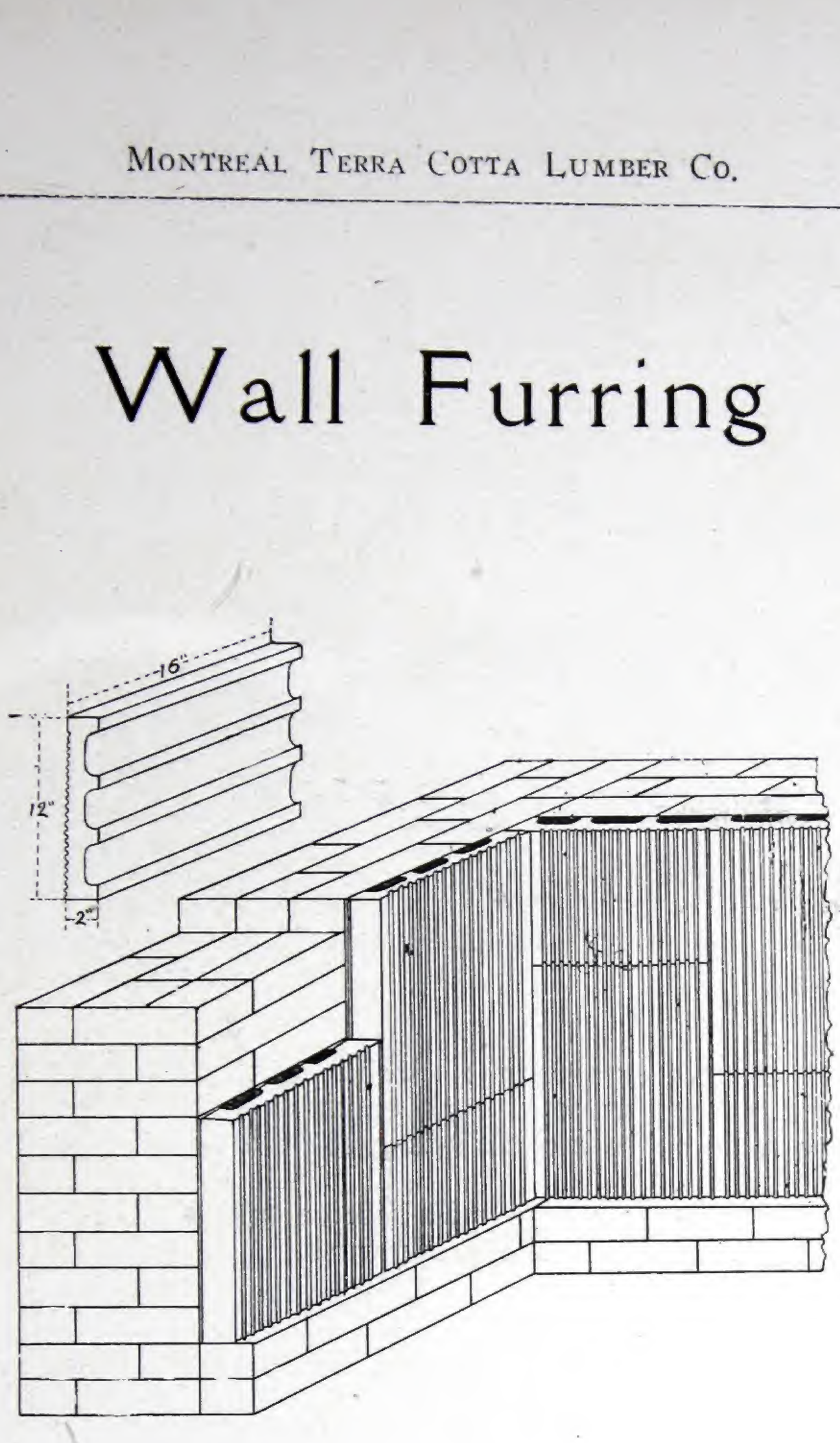


Showing effects of fire on a terra cotta partition.



Showing effects of fire on Metal Lath partition.

Wall Furring



Brick or stone walls exposed to the weather must be furred to prevent dampness reaching the interior and destroying the plastering. For this purpose furring blocks of porous or semi porous Terra Cotta are used.

The blocks are made either 1½, 2 or 3-inches thick, by 8 by 12, or 12 by 12. The ribs being set against the walls, an air space is formed which effectively checks the passage of moisture. They should be fastened to the wall by driving tenpenny nails in the joints of the brickworks, the head of the nail being bent down upon the tile, using a nail over every third block in every second course. The blocks should not be bedded in mortar at the back, since this would defeat their purpose by making a solid connection to carry the moisture through.

This form of furring is the most effective and at the same time the cheapest and most durable of any fire-proof system.

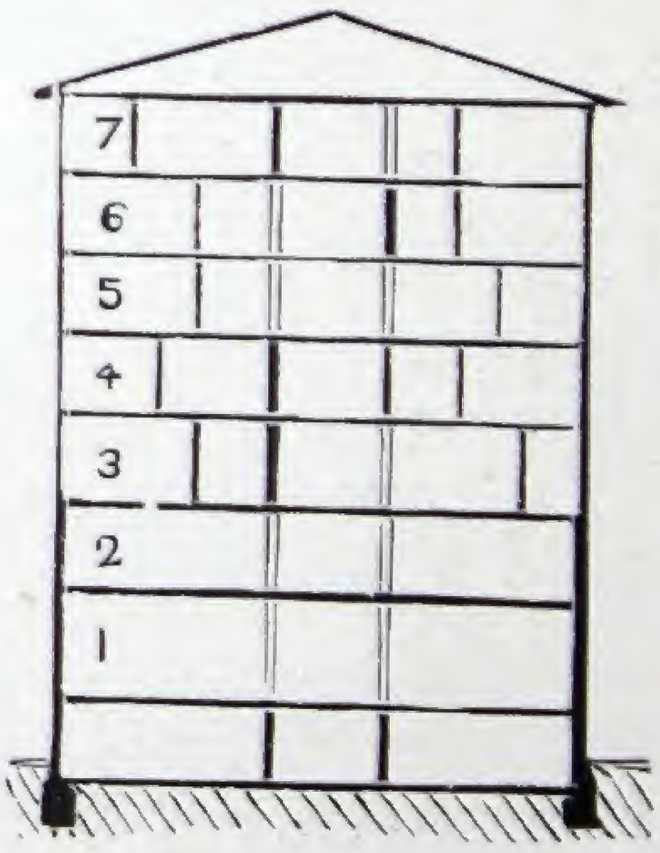
N. B.—Metal lath furring used against exposed walls will be destroyed by rusting in a few years and its renewal will be very costly especially where walls are decorated—Porous Terra Cotta furring will last for ever.

Porous Hollow Bricks

For lining the interior of outside Walls.

Where walls are not less than 16 inches thick they may be furred hollow brick made of the same size as common brick. The building la New York allows them to be included as part of the thickness of the wal

Porous bricks are made which will receive and hold a nail and are where trim must be secured to the brick work.



Section of Steel framing showing possibilities for subdividing on different Floors.

Roof and Ceiling Blocks

Porous Terra Cotta Tiles.

FOR ROOFS AND HANGING CEILINGS.

Also called "Book Tiles" on account of their original shape resembling a book cover but these are now made with perfectly square faced joint instead of the tongue and groove of 20 years ago.

When the roof is to be nearly flat and covered with concrete or tar and felt roofing they are commonly made of semi porous material either 3 or 4-in. thick according to the weight to be carried; 3-in. is generally sufficient.

If the roof is to have considerable pitch, as in mansard roofs, or where slate or roofing tile must be nailed upon them, they should be 3-inches thick and full porous, their exterior webs to be not less than $1\frac{1}{8}$-inches thick.

Care should always be used in the specifications for the steel frame work to call for the spacing of T's to be 1-inch wider than the length of the blocks; for example, for block 24 inches long the T irons should be spaced 25-inches on centers.

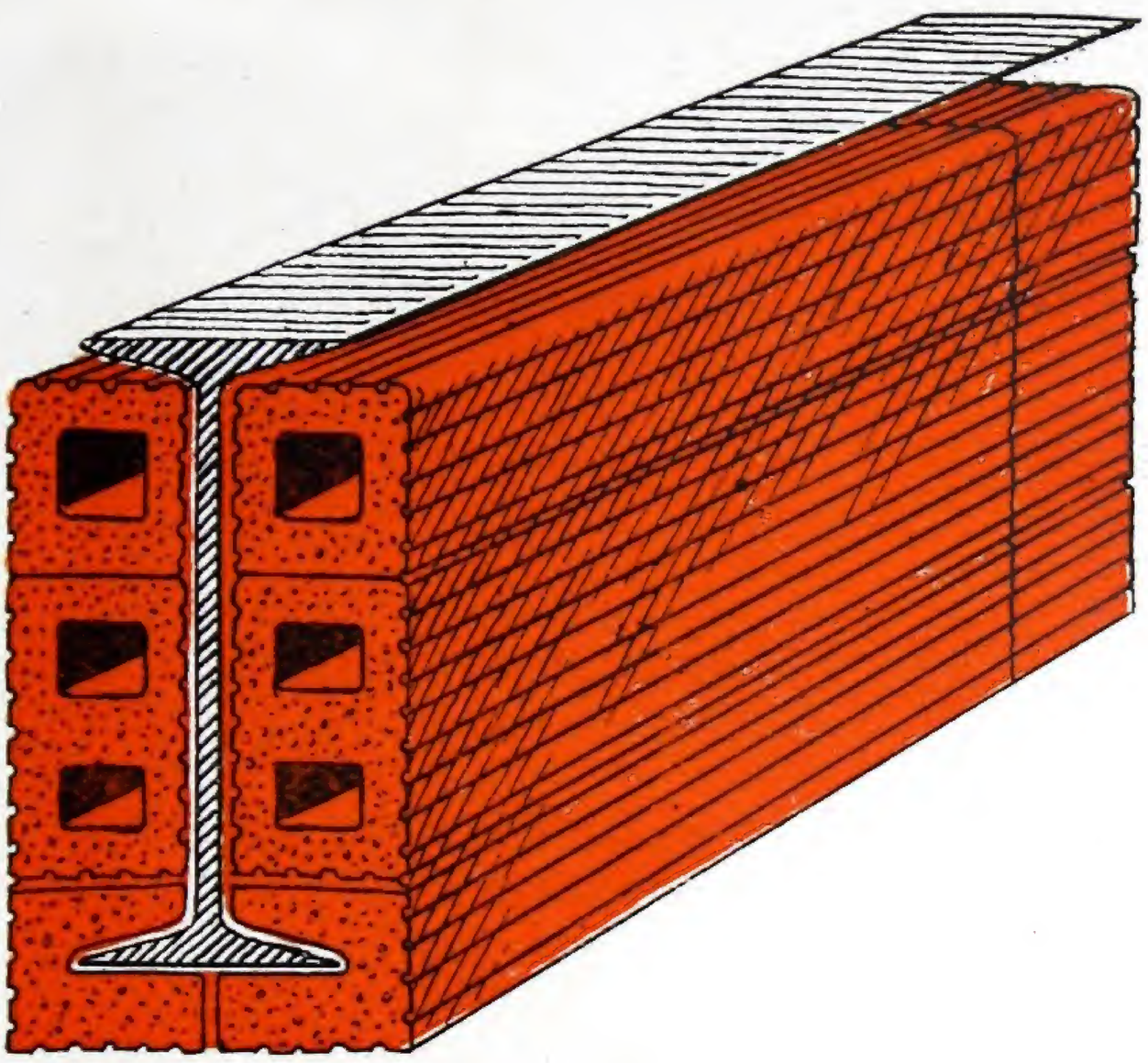
In some cases blocks are cut square and laid upon the flanges of the T's and in others they are rabbeted so that the bottom of the block will drop a little lower than the flange, and in other cases a small skew back to protect the lower flange of the T iron is used: this makes a level ceiling which can easily be plastered.

When provision is made for future increase of height of the building the flat arches are put in as for a floor, and the roof grading and construction may be put in with T's and book tile.

POROUS TERRA COTTA ROOF TILES

(Book Shape.)

FIRE-PROOFING FOR IRON GIRDERS



For Single and Double Girders.

Girder Covering

It is necessary that girders projecting below the ceiling be protected least two inches of Terra Cotta. Those framed level with the floor beams be covered by the same amount of Terra Cotta as used to cover the beam

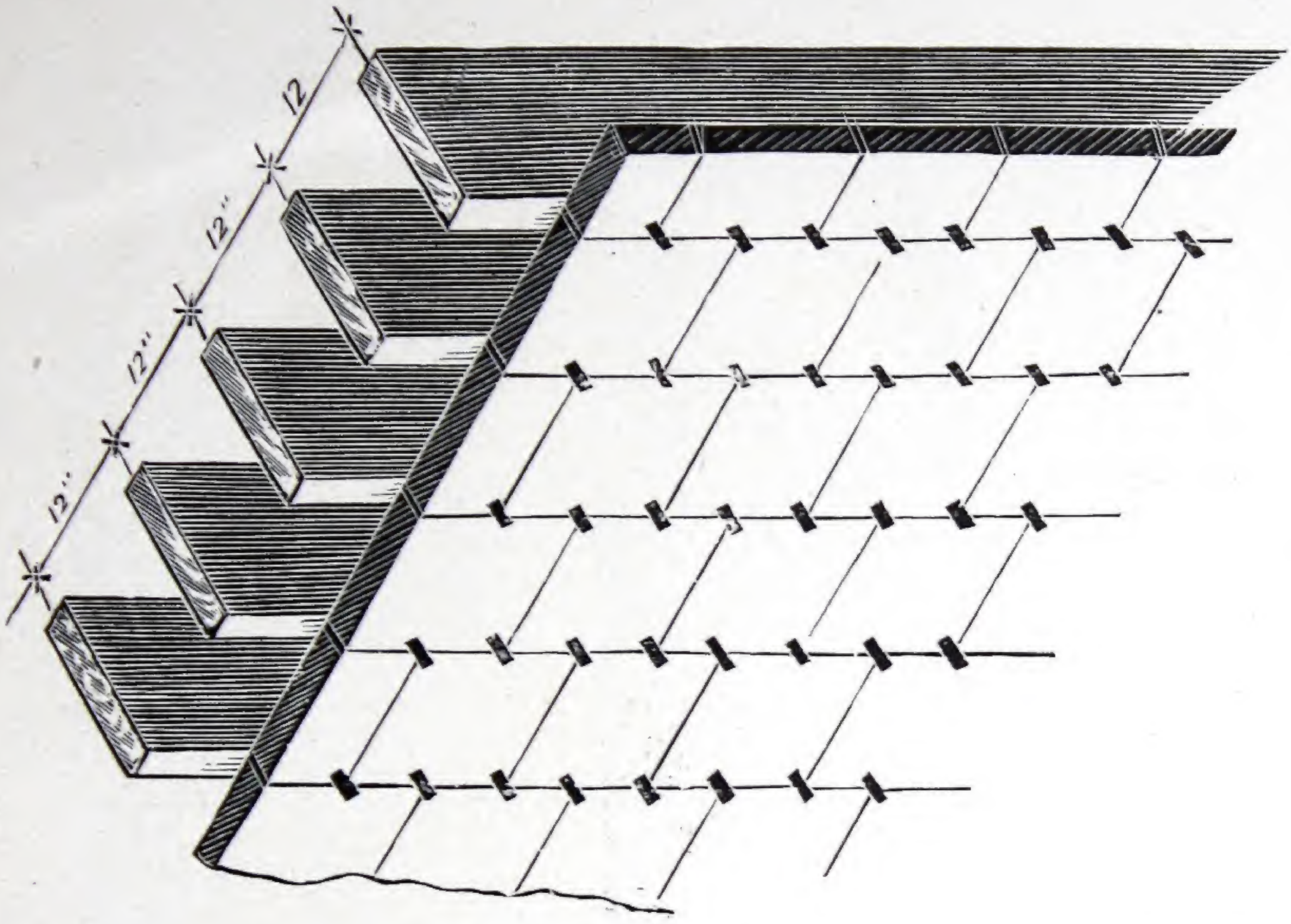
If heavy plaster cornices are used, the girders are protected first by Cotta, and the shape required for the plastering is obtained by iron bracket metal lath, but the latter is not sufficient protection alone.

In case of a serious fire, the integrity of the whole structure depends the thorough protection of the colums and girders, and no reasonable ex should be spared to accomplish this.

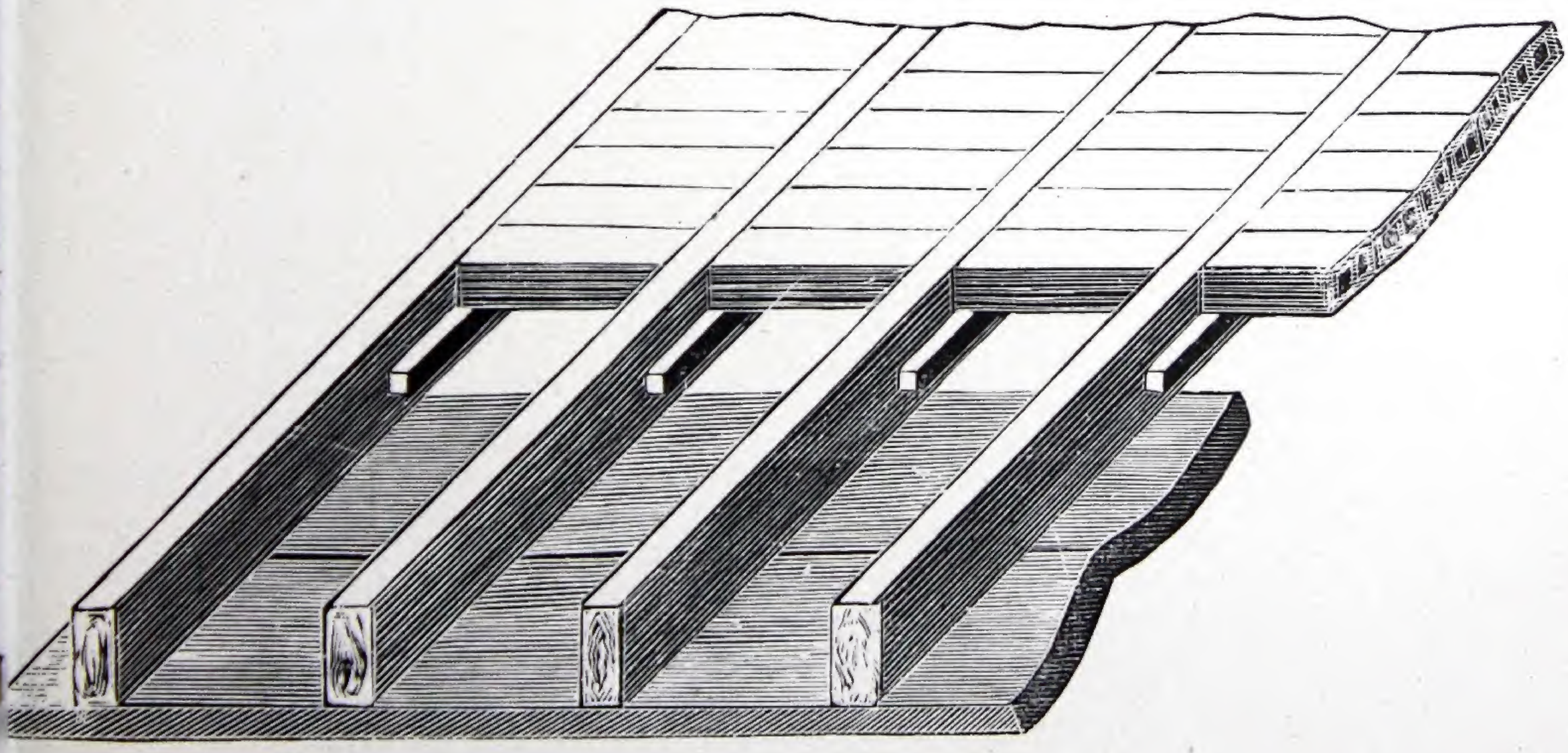
The lower flanges of the beams are usually covered by "Clip tiles" an webs by partition blocks. Where double beams are used the soffits are co by a "soffit" tile fitting into the bevel of the clip tiles. For plate girder when the space is wide, the soffit tiles should be hung on metal clips, whic protected as shown in cut No. 1. Channel beams should never be used e against brick walls as it is almost impossible to protect them, except at a g expense than I beams would cost.

TERRA COTTA CEILING SLABS

Applied to wooden beams.

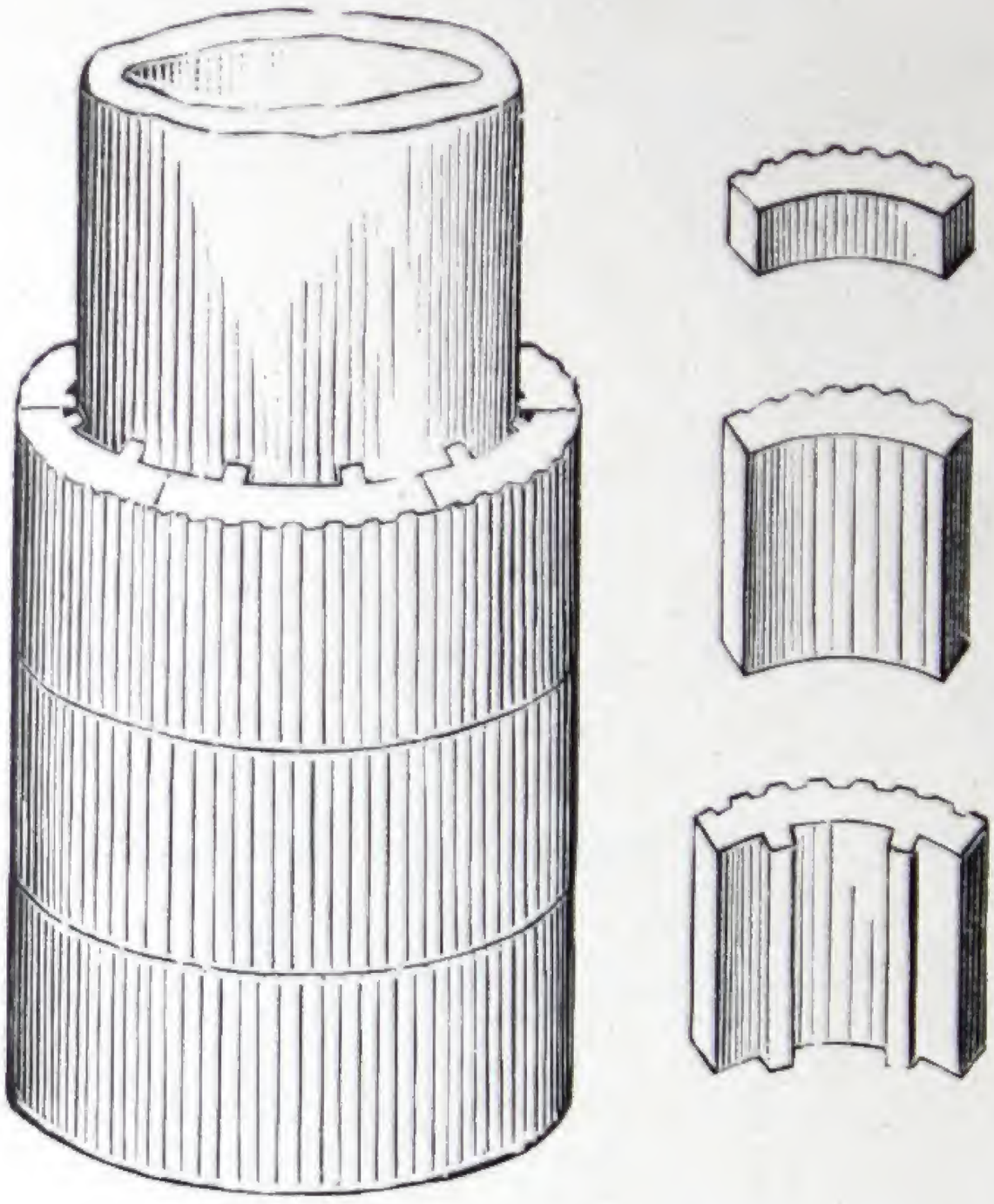


Wooden beams over boiler rooms are frequently fireproofed by using 2-inch ceiling blocks secured to the under side of the beams by screws and washers—This method is approved by the New York Tenement Commission.



Terra Cotta blocks laid between wooden Jorists for deafening, etc.

COLUMN COVERING



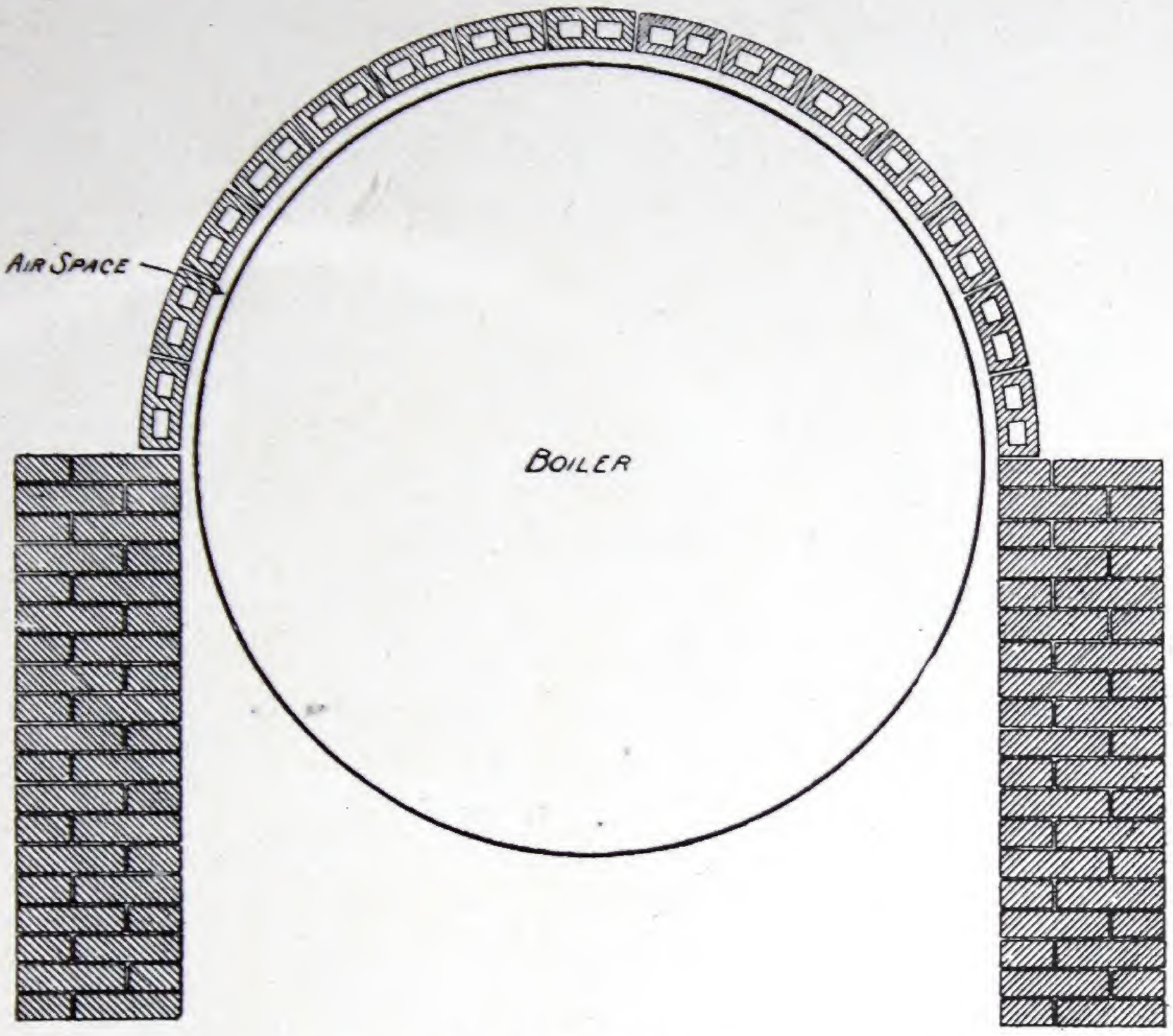
All sizes and shapes made to architects designs.

Experience has demonstrated beyond question the superiority of P
Terra Cotta properly applied. It should be at least 2 inches thick. It
difficult to set the blocks true without some lateral support, where an air
is required next to the iron, they are made with lugs on the inside, which
against the column.

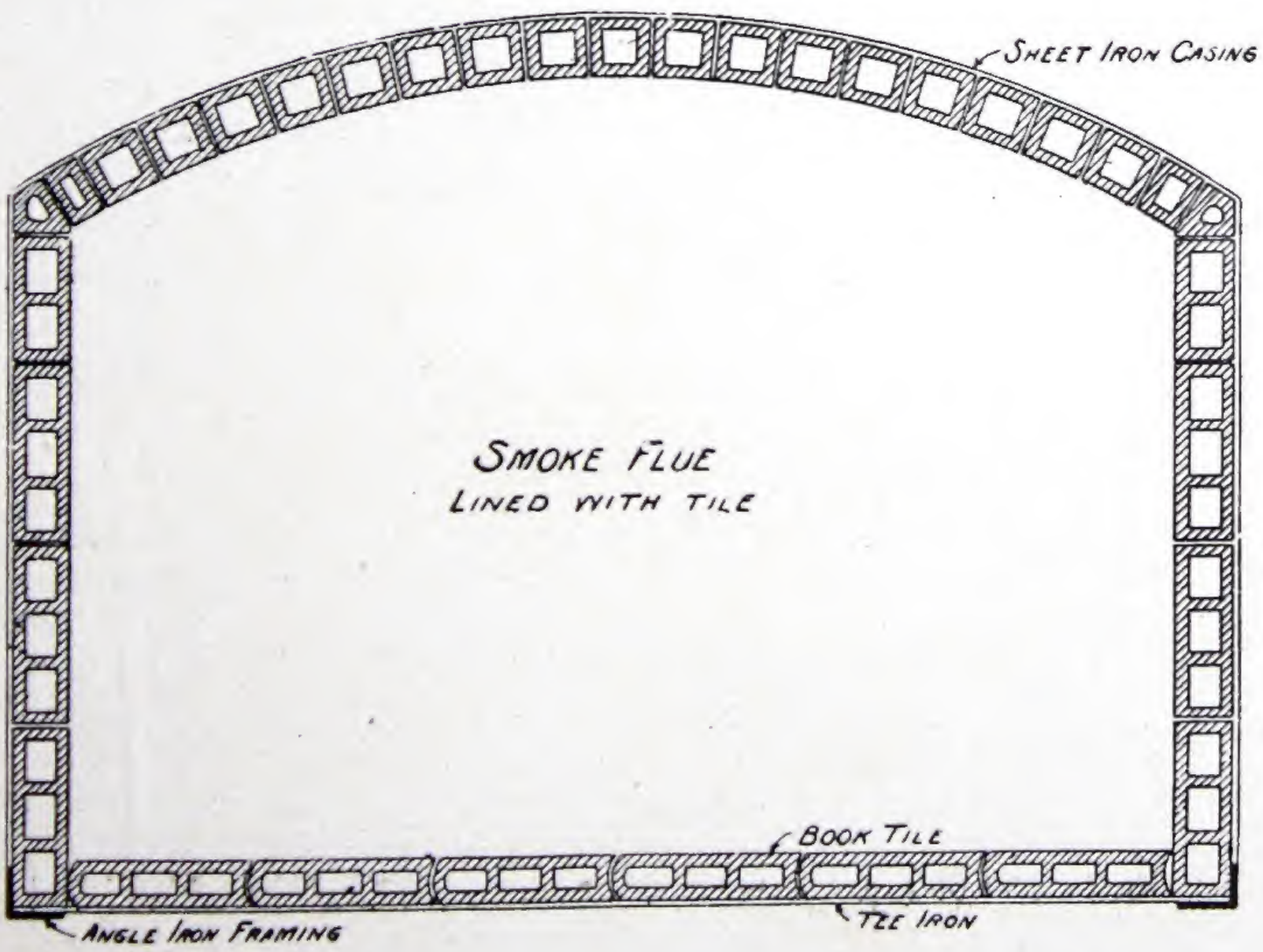
The best form of column covering is undoubtedly the common brick
hollow brick built up around the column. This form is the most solid
cannot be knocked off by fire or water and is a better non-conductor of
than cinder concrete, and unlike cinder concrete, will not corrode steel
Square columns are commonly encased in partition blocks set breaking j
If round corners are required, special blocks are made. Columns shou
covered independently of any piping which may be carried along side of
These should be provided in a separate chase built outside for them.

BOILER COVERINGS

Flue linings of hollow porous terra cotta.



BOILER COVERING



The following are among some of the most important buildings tha
been entirely fireproofed with Porous Terra Cotta.

NO MENTION IS MADE OF BUILDINGS ONLY PARTI
FIREPROOFED.

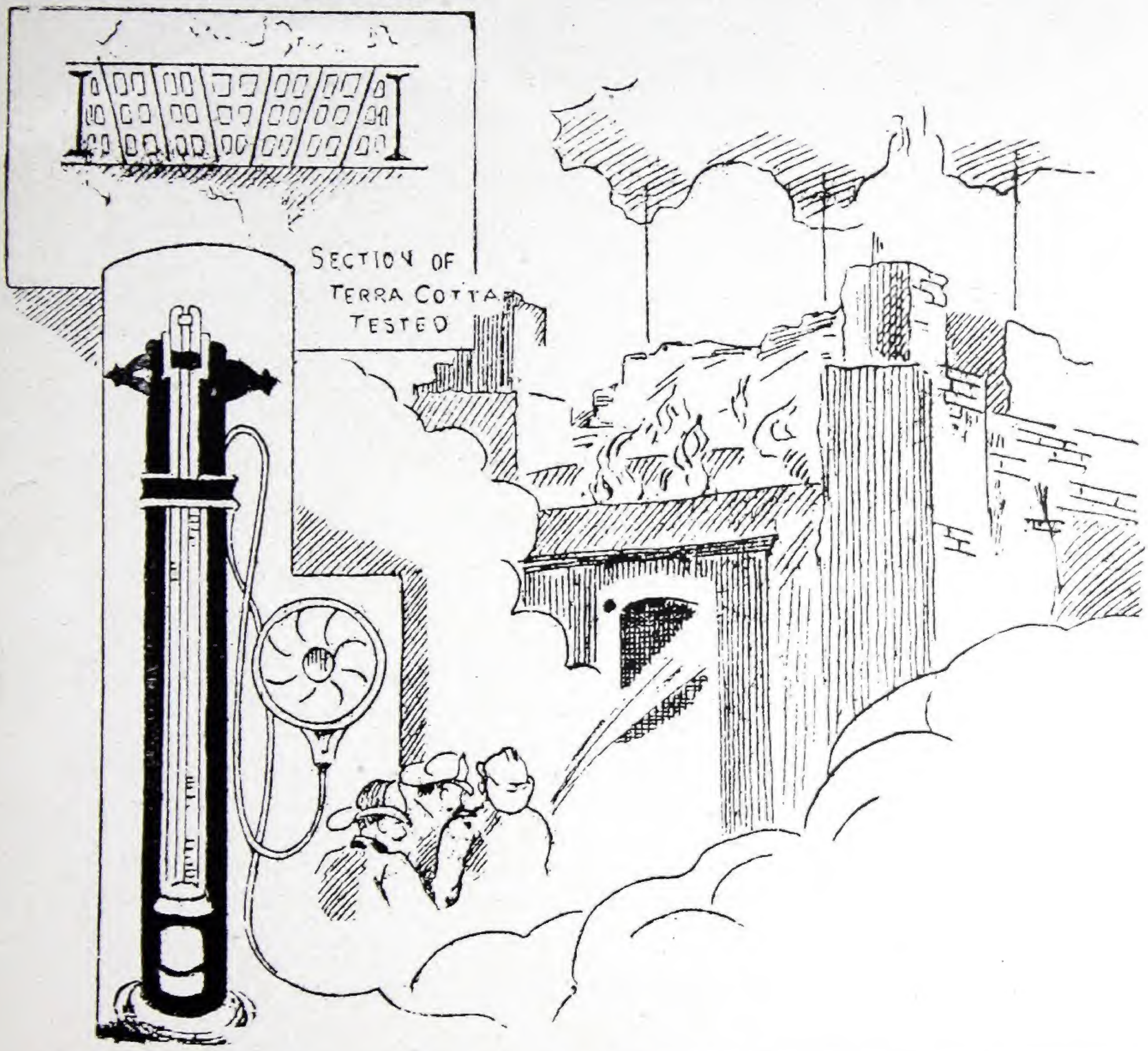
"Star" building	Montreal
"La Patrie" building	"
"The Citizen" building	Ottawa
"Daily Telegraph"—in construction	Quebec
Public Library	Ottawa
New York Life building (american material)	Montreal
Canada Life building	"
Sun Life building	"
London & Lancashire	"
Metropolitan building	"
Guardian Assurance building	"
Lindsay building	"
New Coristine buildings	"
G. T. R. offices, McGill St.	"
Bell Telephone offices, Hospital St.	"
Bank of Montreal	"
Bank of Ottawa	"
Sovereign Bank	"
Eastern Townships Bank	"
Royal Canadian Bank	"
Banque d'Hochelaga	"
City and Distric Saving Bank (St. Catherine)	"
Quebec Bank	"
Bank of Toronto	"
Queen's Hotel and extensions	"
Montreal L. H. & P., Sub-Station, Wellington St.	"
Royal Victoria College	"
Royal Victoria Nurses Homes	"
Hospice Auclair	"
No. 5, Fire Station	"
Commercial Training School	"
Sarah Maxwell Memorial School—in construction	"
Boulevard Protestant School—in construction	"
Mt. LaSalle, infirmary and Chapel	Maisonneuve
St. Viateur Institute	Bordeaux
Holy Cross Convent	St. Laurent
Chaplain's residence—Good Shepherd Convent	Montreal
St. Charles Borromée College	Sherbrooke
Boswell Breweries	Quebec
Paper and Pulp Mills	Grand'Mere
Additions and Extensions to Government Buildings	Ottawa
Lovell & Christmas Cold Storage	Montreal
Credit Foncier building	"
Stock Exchange	"

and a great many others of the same class.

POROUS TERRA COTTA

Tested by the New-York Department of Buildings.

By order of the Department of Buildings, on September 29th, 1896, Superintendent Constable, who is an expert builder and engineer, secured some time ago the plot of ground at the northeast corner of 68th Street and Avenue A, and on it has had constructed a number of brick houses, 12 ft. 0 in. x 15 ft. 0 in. x 10 ft. 0 in. high. These houses are provided with roofs of different materials and thickness and it is the object of these tests to discover how nearly fire proof these materials are.



The house fired yesterday had a 10 inch roof of porous terra cotta supported by 10 inch beams spaced four feet apart. On the roof, brick was piled until the lathing down. Studs well alight.

Then the iron door of the house was open and the big pile of logs on the floor was ignited. In a few minutes the pyrometer connected by a carbon tube with the interior of the house, registered 1000 degrees Fahrenheit of heat and gradually the column rose to 2200 degrees of heat. From time to time fuel was added and at three P.M. after the roof had stood the additional test of a fire built on the outside, engine 39 was summoned from fire headquarters, the red hot iron door was opened and a big stream of water was turned on the blaze; within ten minutes the last spark was extinguished and the heavily weighted roof was still intact, showing that if there had been a second story to the structure, the upper floor would not have been injured by the flames.

(*"N. Y. World"*, September 30th 1896.)

OTHER FIRE TESTS—Nearer home

A Fire in the Canada Life Building

(From the "*Daily Star*", Sept. 16th. 1899.)

"A fire took place in the Canada Life Building this morning, whic
the structure not been so solidly built, might have meant its destructi
was discovered this morning about five o'clock in the office of the W
Watch Company on the sixth story, and had evidently been in progre
some time. The woodwork in the room was all consumed ,and the heat
great as to char the wooden lining of the safe and burn some papers. Ho
rs the different offices are separated by solid walls (Terra Cotta partitio
damage was done to the adjoining offices. In fact it is stated, that the
in the next office were unaware this morning that there had been a fire.

In Chateau Frontenac, Quebec.

(From "*La Patrie*", May 18th. 1898.)

"Fire broke out about midnight in the basement of the "Chateau F
nac" Hotel, in the room adjoining the storage department. The Engine
Mr. Béliveau, the Manager, came very near losing their lives...

The room in which the fire occurred was divided by Terra Cotta Wal
Ceilings which suffered no damage although severely tried by the very i
heat and were the means of saving the building from being completely dest

In the Queen's Hotel, Montreal.

A fire was discovered in the basement of the Queen's Hotel in Mo
It was caused by escaping gas through a leak in one of the mains, the t
closed room had become filled with gas which appeared to have been burni
a long time as the brick in the walls had become heated to a white heat.
Vallée, the proprietor stated that upon breaking a hole through the wall
a crow bar, a tongue of flame shot out with such force that he feared the
destruction of the building. They managed to get at the meter and sh
the gas supply, when the fire went out for the want of fuel, the walls c
off and showed no effects from this severe ordeal. It was said that the g
were at their breakfast when this fire occurred and little they suspected
right under their feet a serious fire was raging while they were enjoying
meal.

In the Western Block, Ottawa.

(From the "*Montreal Gazette*", February 13rd. 1897.)

"Where the roof had been was a mass of smouldering ruins and co
streams of water were required to prevent the concrete ceiling being
through and the fire spread to the floors below. This was accomplished e
at the Northeastern corner of the building where the *Concrete gave wa*
the fire got down about 9 o'clock this morning into the rooms of the Mi
and Deputy Minister of Marine and Fisheries. The greatest damage was
in the Minister's room where Mr. Davies, who has not yet returned
Washington had a number of valuable private papers destroyed, etc., etc.

Fire Breaks out again.

"At six o'clock this evening the brigade was again called out. The smou
ing ruins of the roof *having eaten their way down through the concrete* a
the room of the engineers' branch of the Public Works Department an
fire to the Chief Engineer's Office which was pretty badly damaged, etc., e

A TESTIMONIAL

From Mr. F. Tremblay manufacturer of doors, sashes, planing, sawing, etc.
400 William St., Montreal.

April, 16, 1900.

The Montreal Terra Cotta Lumber Co. Limited, Montreal.

Dear Sirs,

The ceiling over my boilers, built of your terra cotta fireproofing, was the means of saving everythng contained in the boiler room. While the entire mill and its contents including are machinery was destroyed by fire last week. I am so well pleased with the fire resisting qualites of your material, that I have decided to use it more extensively in the reconstruction of my mill.

Yours truly,

F. TREMBLAY.

FIRE TESTS ON LATH

Wood and Metal and Plaster Partition. By the British Fire Prevention Committee.

London, Eng., May 5th, 189

The lath and plaster partitions was to show two variations of constr (A) with wood lath; (B) with metal lathing.

The time allowed for constructions of the partitions was three and weeks.

SUMMARY OF REPORT.

Lath and plaster partition was practically destroyed. Fire broke th the plastering on wood lath in 28 minutes, at about 1600 degrees Fahr and through that on wire lath in 40 minutes ,at about 1750 degrees Fahre

At 6.12 P.M. — The fire was lighted.

At 6.28 P.M. — Plaster on wood lath falling.

At 6.35 P.M. — Plaster on metal lathing falling (only 7 minutes differe

At 6.36 P.M. — Plaster and wood lathing gone on fire side, and c alight on passage side. Studs well alight.

At 6.37 P.M. — Plaster on metal lathing falling off on fire side and lathing down. Studs well alight.

At 6.40 P.M. — Blaze of flame through passage side of wood lath par studs burning on all sides.

At 6.42 P.M. — Wire lathing on fire side bare of plaster, and lathing a all down.

At 6.45 P.M. — Plaster on passage side bulging away from metal lathi

At 6.52 P.M. — Spurts of flame showing through cracks on passage of metal lath partition.

At 6.54 P.M. — Plaster on metal lathing red hot on passage side.

PLASTER OF PARIS

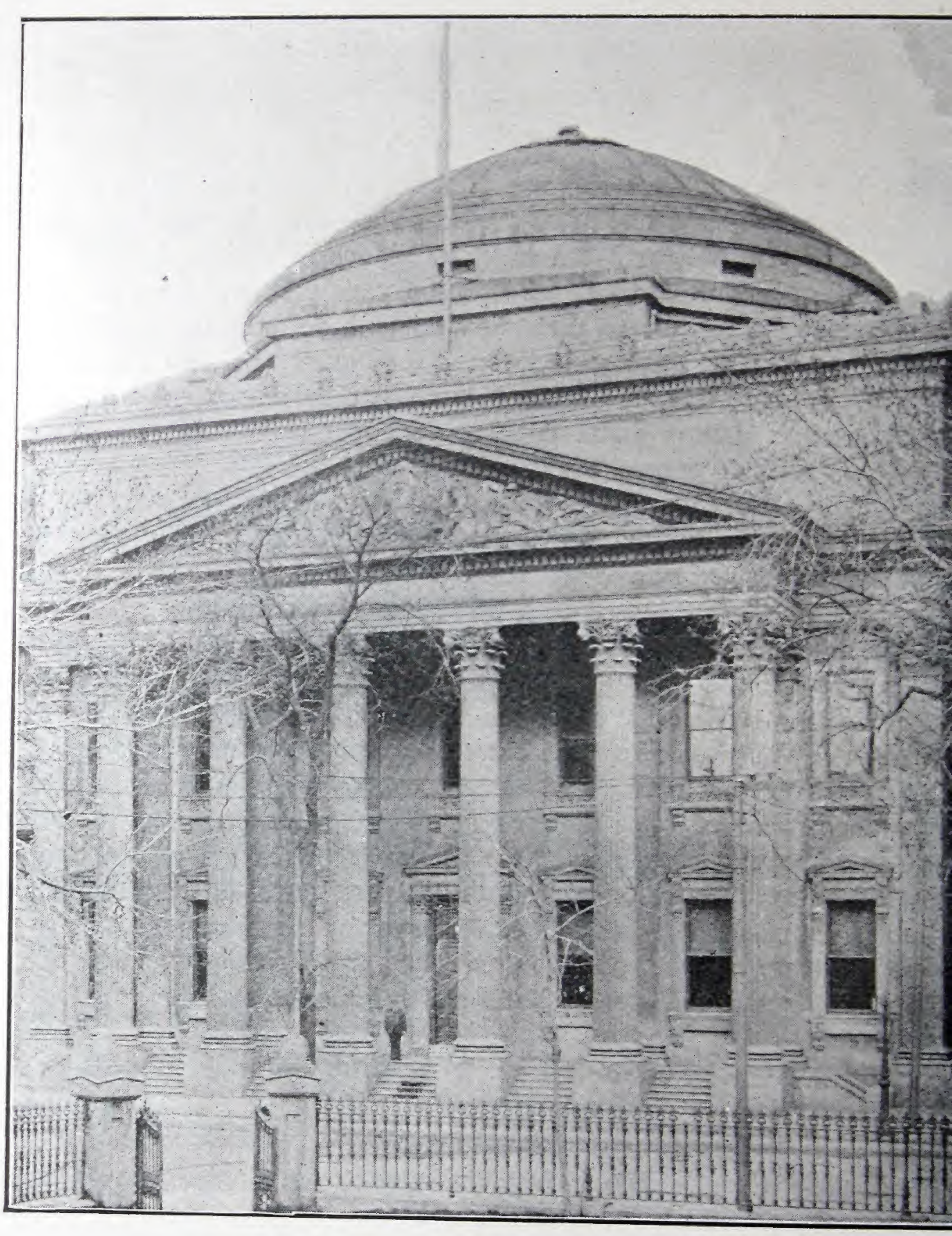
Compositions are not fireproof.

Plaster of Paris is undoubtedly one of the most perfect insulating materials which we possess, and as a matter of protection against heat only the magnesia compounds and infusorial earth can equal it. When, however, plaster of Paris is considered for the protection of a building against the action of fire, so many different elements are introduced that other things have to be thought of besides mere resistance to heat. Plaster blocks have been used repeatedly for partitions and floors but in every case the fatal objection is discovered that *no compound of plaster* can successfully stand either a long continued exposure to direct flame or even a limited exposure to combined heat and water.

Even the best of the plaster blocks and compounds on the market will absorb from 40 to 59 per cent of their dry weight of water, while an ordinary brick will absorb considerable less than 10 per cent in twenty four hours. A piece of plaster block exposed to a flame having a temperature even as low as 450 degr. for two hours, would be quite thoroughly calcined and upon immersion in water would almost totally disintegrate into a fine powder. Brick, or terra cotta, subjected to the same conditions might possibly crack but would not disintegrate. Furthermore, it is extremely difficult to set plaster blocks in partitions and have the mortar and cement cohere properly unless the blocks are first soaked in water, when the amount of water absorbed becomes so large that it takes sometimes even months for the water to dry out of the wall. In setting brick, or terra cotta, the pieces are likewise immersed in water but the absorption is slight and evaporates in a comparative short time.

There is simply no comparison in efficiency, fire resisting qualities, or ease of manipulaton, between plaster of Paris and brick or terra cotta.

(Extract from "*The Brick Builder*", Aug. 1903.)

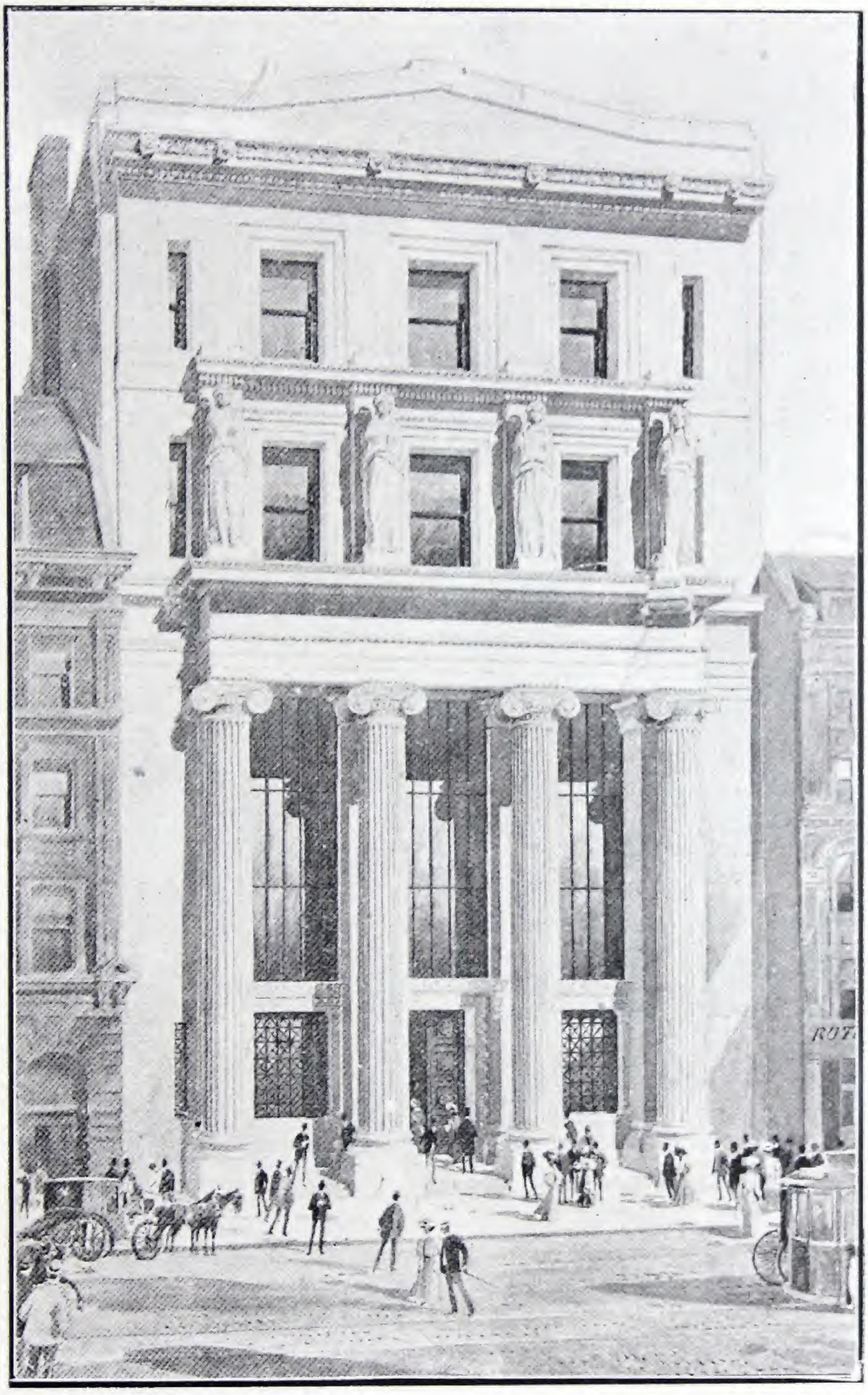


BANK OF MONTREAL

(Head Office)

McKim, Meade, White
and A. T. Taylor,
Associate Architects.

Norcross Bros. Co.
& Wighton Morison Co
Contra



ROYAL BANK OF CANADA, Montreal

H. C. Stone,
Architect.

Chas. Thackray,
Contractor.

BANK OF OTTAWA BUILDING, Montreal

H. C. Stone,
Architect.

Wm. Grace Co
Contra

EASTERN TOWNSHIPS BANK, Montreal

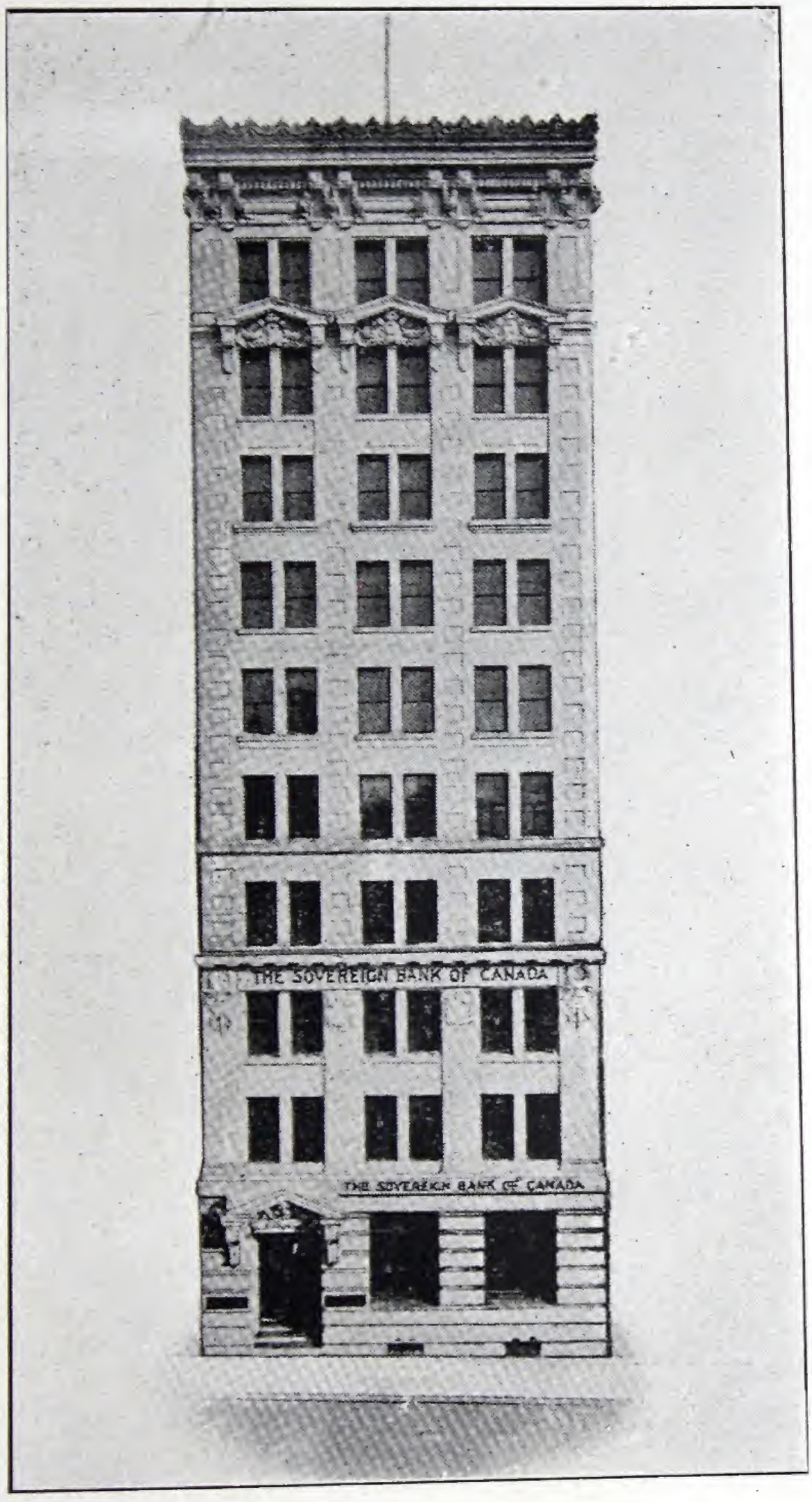
Cox & Amos,
Architects.

P. Lyall & Sons,
Contractors.

CANADA LIFE BUILDING, Montreal

R. A. Waite,
Architect.

P. Lyall & So
Contr



SOVEREIGN BANK BUILDING, Montreal

H. C. Stone,
Architect.

Chas. Thackray,
Contractor.

GRAND TRUNK RAILWAY GENERAL OFFICES, Montreal

R. A. Waite,
Architect.

P. Lyall & Sons,
Contracto

THE "STAR" BUILDING,

A. F. Dunlop,
Architect.

P. Lyall & Sons,
Contractors.

"LA PATRIE" BUILDING

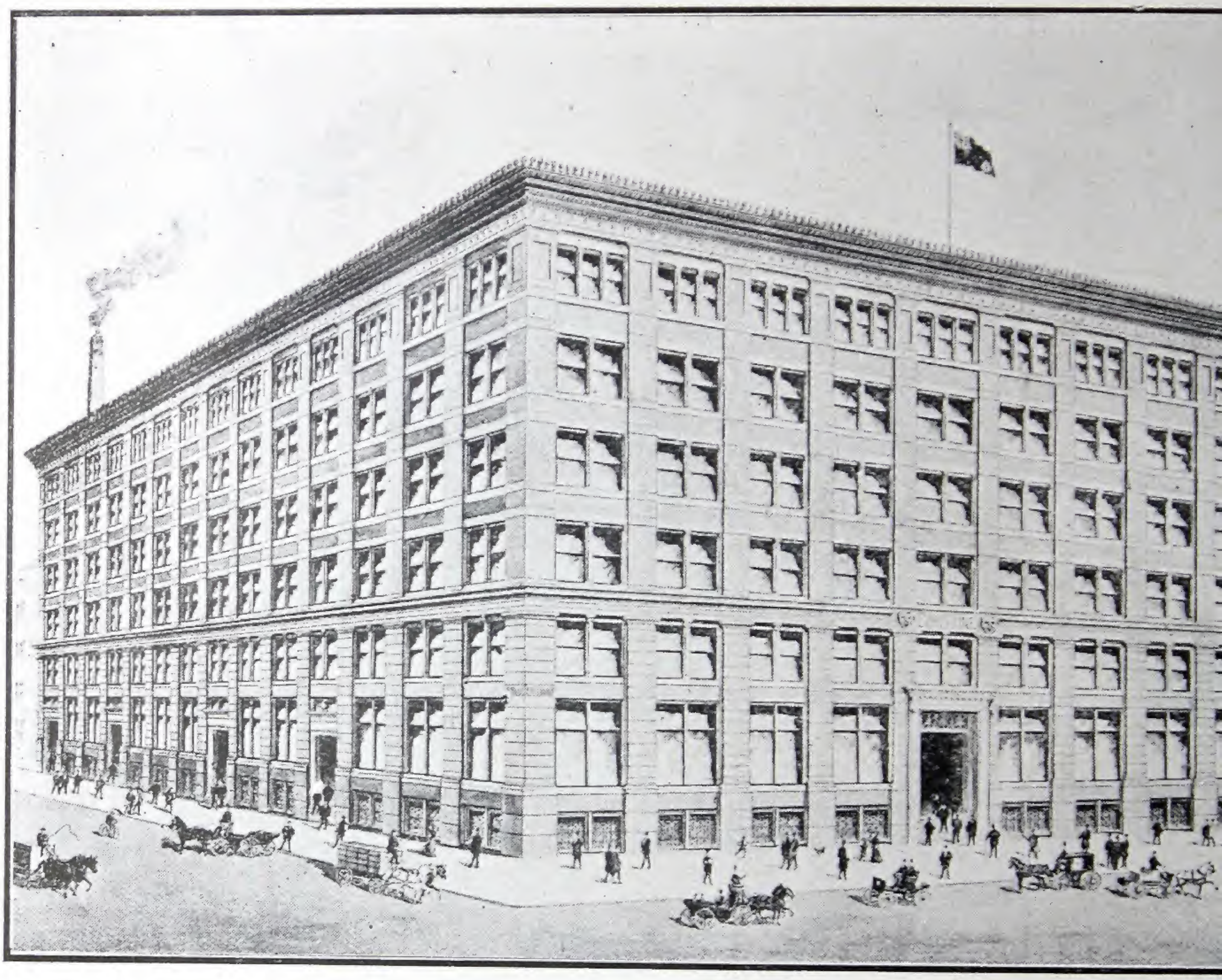
G. A. Monette & J. O. Turgeon,
Architects.

P. Lyall & Sons,
Contract

SUN LIFE BUILDING, Montreal

Robert Findlay,
Architect.

John McLean,
Contractor.
(For the fireproofing.)



CORISTINE BUILDING, Extension

H. C. Stone,
Architect.

C. E. Deakin,
Contra

GUARDIAN ASSURANCE

Finley & Spence,
Architects.

P. Lyall & Sons,
Contractors.

MONTREAL STOCK EXCHANGE

E. & W. S. Maxwell & Geo. B. Post,
Architects.

P. Lyall & Sons,
Contract

LOI DON & LANCASHIRE LIFE BUILDING

E. & W. S. Maxwell,
Architects.

J. W. Bishop Co.
Contractors.

CATHOLIC SEMINARY, Sherbrooke, Que.

G. Emile Tanguay & J. J. B. Verret,
Architects.

A. Bonin,
Contrac

QUEEN'S HOTEL, Montreal

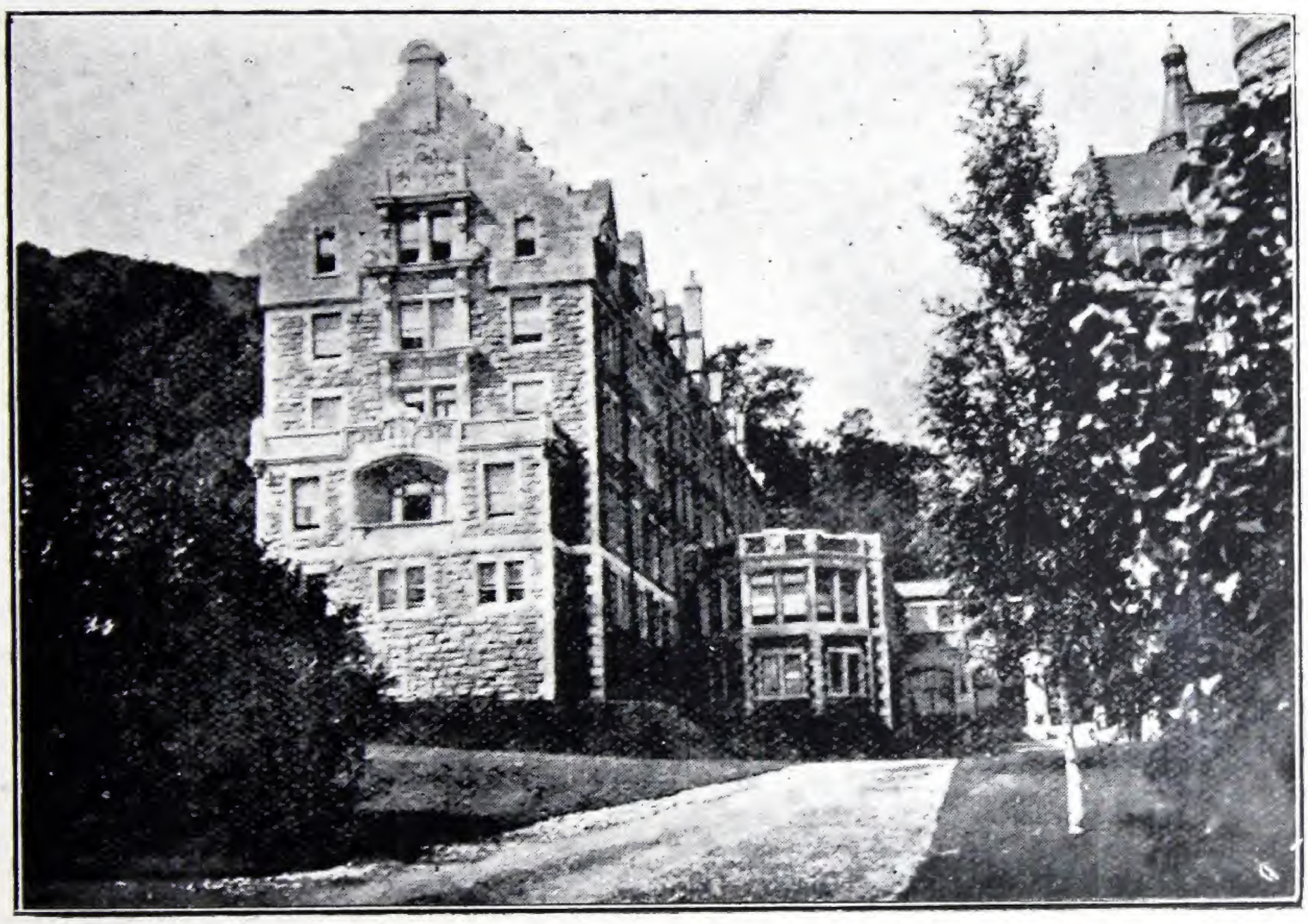
A. F. Dunlop,
Architect.

Chas. Thackray,
Contractor.

ROYAL VICTORIA COLLEGE, Montreal

Bruce Price,
Architect.

P. Lyall & Sons,
Contract



NURSES' HOME

(Royal Victoria Hospital, Montreal)

Edward & W. S. Maxwell,

Architects.

John Allan,

Contractor.

TABLE OF WEIGHTS, Etc.

Porous Terra Cotta Fireproofing

a b c d indicate thickness of the walls, or solid parts of the blocks as follows : *a*-1 inch ; *b*-⅞ inch ; *c*-¾ inch ; *d*-⅝ inch.

FLOOR ARCHING

DEPTH OF ARCH	DESCRIPTION	MAXIMUM SAFE SPAN	WEIGHT PER SQUARE FOOT	SAFE LOAD PER SQUARR FOOT
6 inches	Flat	5 feet	*a* - 24 lbs ; *b* - 21 lbs ; *c* - 19 lbs ; *d* - 17 lbs.	*a* *b* *c* *d* 250 lbs; 225 lbs; 200 lbs; 175 lbs.
7 "	"	5½ "	*a* - 26 lbs ; *b* - 24 lbs ; *c* - 21 lbs ; *d* - 18 lbs.	
8 "	"	6 "	*a* - 30 lbs ; *b* - 27 lbs ; *c* - 24 lbs ; *d* - 20 lbs.	
9 "	"	8 "	*a* - 35 lbs ; *b* - 32 lbs ; *c* - 28 lbs ; *d* - 23 lbs.	
10 "	"	10 "	*a* - 45 lbs ; *b* - 40 lbs ; *c* - 35 lbs ; *d* - 30 lbs.	
12 "	"	12 "	*a* - 50 lbs ; *b* - 44 lbs ; *c* - 39 lbs : *d* - 34 lbs.	

SEGMENT ARCHES

6 inch Arch 8 " "	4 inch Camber 4 " "	Safe Span 12 ft, (*a*) " 15 ft, (*a*)	Safe load per square foot : *a* 500 lbs ; *b* 450 lbs ; *c* 400 lbs ; *d* 350 lbs.

PARTITIONS AND WALLS

THICKNESS	SAFE HEIGHT	SAFE LENGTH	WEIGHT PER SQUARE FOOT
3 inches	15-0	30 feet	14 lbs (*a*)
4 "	25-0	50 "	17 lbs (*a*)
5 "	28-0	55 "	20 lbs (*a*)
6 "	30-0	60 "	24 lbs (*a*)

BOOK TILES

2 inch Tiles	10 lbs per square foot

SPECIFICATIONS

— FOR —

Terra Cotta Fireproofing

General.

The contractor for this work will be required to furnish all the material and labour of every description required to erect the same in place complete.

The contractor is referred to the plans and details for the general construction, and especially the steel diagram and details showing connection between the structural steel and terra cotta work.

Special Shapes.

The contractor shall furnish all necessary special shapes for the proper fitting to the steel work.

Details.

Large scale details, or full sized drawings for all special shapes, column coverings, lintel covers, girder covers, and general type of arch; shall be supplied by the architects, or by the contractor and submitted to the architects for their approval.

Scaffolding, Tools, Etc.

Furnish all tools, machinery hoisting apparatus and centering necessary to carry on the work at the rate of progress stipulated in the contract.

Materials.

All the terra cotta required for this work shall be of the best quality of well burned *porous terra cotta* as manufactured by **The Montreal Terra Cotta Lumber Co.**

Mortar and Laying.

All the terra-cotta work for the floor construction shall be laid in cem
mortar composed of one (1) part Portland cement (approved brand),
(4) four parts clear sharp sand. The sand and cement to mixed together
and sufficient water added to throughly wet same, and then throughly tempe
All other terra work is to be laid in mortar composed as follows: One (1)
Portland cement, (5) five parts sharp sand, throughly mixed and well tempe
All the terra cotta work must be laid with full flush joints, plumb to a line
horizontal beds uniformly level on each course. Fill all joints and crev
between the tile and steel work with cement mortar well slushed in.

Type of Arch.

The arches for the floor in general shall be.....inch flat, or segm
arches, with side or end construction. Skewbacks must be carefully bedde
place against beams.

Beam Protection.

The soffits of all beams to be protected with slabs of terra cotta at
one inch thick, unless protected by flanged skewbacks.

Roofs.

The arches for the main roof are to be.....inch segment, or flat, ar
same as specified for the floors.

Minor Roofs.

The roof of pent houses, roof over projecting and other portions indic
on details as book tile, shall be made (3) three inch porous tile set in
between T irons. Size of tiles to be 3" x 12" x...

N. B.—Allow one inch in addition to length of tile from center to c
of T irons, for mortar.

Partitions.

All partitions shown on the plans to be built the thickness indicate
figures. If no dimensions are given, the following sizes will govern;

Partitions for all corridors, and for partitions over 12 feet and up
feet in height, to be 4 inches thick.

Partitions over 14 feet in height to be not less than 6 inches thick, and all cross partitions 12 feet or less to be 3 inches, partition walls to be built straight, true, plumb, and well bonded with proper (break joints) bond on each alternate course, and all joints throughly flushed up with cement mortar, and to be well wedged underneath fireproof ceiling.

Furring.

(a) Where indicated on plans, (2) two inch terra cotta furring to be built against the outside walls of the building. The furring to be secured to the brick walls with tenpenny spikes on every third course, driven into the brick work at intervals not greater than thirty-six inches apart (see wall lining.).

Wall Lining.

(b) The outside walls to be lined with terra cotta blocks 12 x 8 x 4 forming the last four inches of the interior face of the wall. The said blocks to be tied in with metal ties or with terra cotta, or brick header at intervals not greater than 36 inches.

Curb Wall Lining, Etc.

The curb wall in basement shall be furred with (3) three inch split terra cotta extending up to the underside of the iron plate along edge of curb wall and properly fitting around all beams.

Rough Frames and Blocks.

The contractor for carpenter work will furnish and erect the rough wood frames at all openings in partitions. He will also furnish and place in position all rough grounds necessary around all window-openings for furring blocks. These blocks must be built in place by fireproofing contractor wherever directed by the architect.

Column Covering.

All column covering shall start in all cases from the floor arches. Column covering shall be designed to properly fit the column. All corners of square columns shall be left (square) (round).

Column covering to be well secured to the column, and may be wired at each course in height, or secured together with clasps, when found necessary to do so.

Covering Exposed Steel Work.

All girders, beams, channels, etc., that show below underside of are to be encased on all sides with at least one inch thickness of porou cotta tile secured to the steel in the usual manner. If required, special will be submitted to the architect.

Boxes for Plumbing Pipes.

All soil, vent, down spout, or water supply pipes shall be boxed in, (3) three inch terra cotta starting from the floor in all cases. This boxing not be done until the pipes have been properly tested and covered by a contractor. There shall be no openings into the boxes, except for outl the various floors. Where these outlets occur, small wood frames furnish the carpenter shall be set by the fireproofing contractor.

Bulk Heads.

All bulk heads of the first and second floors shall be built of (3) thre terra cotta; the structural iron contractor furnishing all necessary T iro the support of the blocks. (See details for bulk head treatment and iron ings for the supports.) Provide (3) (4) inch terra cotta for the end o heads where intersected by the entrance doors.

Toilet Room Floors.

All toilet room floors, where shown on plans, shall be raised appro tively.....inches with terra cotta fireproofing. Supports to be so arrang not to interfere with the piping of these rooms.

Floor Strips and Concrete Filling.

After the floor arches have been set in place, and at such time as m designated by the architect, the contractor for the carpenter work will fu and set the 2 inch by 3 inch wood floor strips required as nailing ground fo finished wood flooring where wooden flooring is called for. After the have been set the fireproofing contractor must fill in between the same concrete filling; the concrete is to be composed of one part Portland ce

(approved brand) (2) two parts sharp and six parts broken terra cotta or brick, stone, gravel, or clean coal cinders, throughly mixed together dry, then tempered and mixed and stamped in place. In no case shall cinder concrete be allowed to come in contact with structural steel.

Finally.

Do everything necessary to finish the entire work in thorough and substantial manner.

Remove promptly from the premises all tools, scaffoldings, unused material, debris, etc., as soon as the work is completed.